

WHAT IS CLAIMED IS:

1. A radio frequency identification (RFID) integrated circuit (IC), comprising:

a first antenna pad;

a second antenna pad;

a first modulator coupled to said first antenna pad, wherein said first modulator is configured to backscatter modulate a first symbol received from said first antenna pad with a response symbol, wherein said first modulator is configured to output said backscatter modulated first symbol to said first antenna pad; and

a second modulator coupled to said second antenna pad, wherein said second modulator is configured to backscatter modulate a second symbol received from said second antenna pad with the response symbol, wherein said second modulator is configured to output said backscatter modulated second symbol to said second antenna pad.

2. The RFID IC of claim 1, further comprising:

a first receiver coupled to said first antenna pad, wherein said first receiver receives said first symbol from said first antenna pad and outputs a first received signal; and

a second receiver coupled to said second antenna pad, wherein said second receiver receives said second symbol from said second antenna pad and outputs a second received signal.

3. The RFID IC of claim 2, further comprising:

a state machine configured to receive said first received signal and said second received signal and generate said response symbol.

4. The RFID IC of claim 3, further comprising:

a data programming unit that stores a tag identification number.

5. The RFID IC of claim 4, wherein said state machine is configured to read said stored tag identification number, wherein said state machine is configured to generate said response symbol using said first received signal, said second received signal, and a bit of said read tag identification number.

6. A radio frequency identification (RFID) integrated circuit (IC), comprising:

an antenna pad; and

a modulator coupled to said antenna pad, wherein said modulator is configured to backscatter modulate a symbol received from said antenna pad with a response symbol, wherein said modulator is configured to output said backscatter modulated symbol to said antenna pad.

7. The RFID IC of claim 6, further comprising:

a receiver coupled to said antenna pad, wherein said receiver receives said symbol from said antenna pad and outputs a received signal.

8. The RFID IC of claim 7, further comprising:

a state machine configured to receive said received signal and generate said response symbol.

9. The RFID IC of claim 8, further comprising:

a data programming unit that stores a tag identification number.

10. The RFID IC of claim 9, wherein said state machine is configured to read said stored tag identification number, wherein said state machine is configured to generate said response symbol using said received signal and a bit of said read tag identification number.

11. A radio frequency identification (RFID) tag device, comprising:

a first antenna;

a second antenna;

a first receiver coupled to said first antenna, wherein said first receiver is configured to receive a first symbol from said first antenna, and wherein said first receiver is configured to generate a first received signal;

a first modulator coupled to said first antenna, wherein said first modulator is configured to backscatter modulate the received first symbol with a response symbol, wherein said backscatter modulated first symbol is output to said first antenna;

a second receiver coupled to said second antenna, wherein said second receiver is configured to receive a second symbol from said second antenna, and wherein said second receiver is configured to generate a second received signal;

a second modulator coupled to said second antenna, wherein said second modulator is configured to backscatter modulate the received second symbol with the response symbol, wherein said backscatter modulated second symbol is output to said second antenna; and

a state machine coupled to said data programming unit and said first and said second receivers.

12. The RFID tag device of claim 11, wherein said state machine is configured to receive said first received signal from said first receiver and to receive said second received signal from said second receiver, wherein said state machine generates said response symbol.

13. The RFID tag device of claim 12, further comprising:  
a data programming unit that stores a tag identification number.

14. The RFID tag device of claim 13, wherein said state machine is configured to read said stored tag identification number, wherein said state machine is configured to generate said response symbol using said received signal and a bit of said read tag identification number.

15. A radio frequency identification (RFID) tag device, comprising:

an antenna;

a receiver coupled to said antenna, wherein said receiver is configured to receive a symbol from said antenna, and wherein said receiver is configured to generate a received signal;

a modulator coupled to said antenna, wherein said modulator is configured to backscatter modulate the received symbol with a response symbol, wherein said backscatter modulated symbol is output to said antenna;

a state machine coupled to said data programming unit and said receiver.

16. The RFID tag device of claim 15, wherein said state machine is configured to receive said received signal from said receiver, wherein said state machine generates said response symbol.

17. The RFID tag device of claim 16, further comprising:  
a data programming unit that stores a tag identification number.

18. The RFID tag device of claim 17, wherein said state machine is configured to read said stored tag identification number, wherein said state machine is configured to generate said response symbol using said received signal and a bit of said read tag identification number.

19. An identification (ID) tag, comprising:  
a substrate having an input capable of receiving a high frequency signal;

a first charge pump coupled to said input and disposed on said substrate, said first charge pump configured to convert said high frequency signal to a substantially direct current (DC) voltage;

means for storing a bit pattern;

a data recovery circuit coupled to said input and disposed on said substrate, said data recovery capable of recovering data from said high frequency signal;

a backscatter switch coupled to said input and disposed on said substrate, said back scatter switch capable of modifying an impedance of said input and responsive to a control signal;

a state machine disposed on said substrate and responsive to said data recovered by said data recovery circuit, said state machine generating said control signal for said backscatter switch in response to said data;

said DC voltage from said first charge pump capable for providing a voltage supply for at least one of said data recovery circuit, said backscatter switch, and said state machine; and

means for communicating with a reader using a binary traversal algorithm, said binary traversal algorithm comparing bits within the bit pattern to symbols received from said reader.

20. The tag of claim 19, wherein said means for communicating includes means for concluding said binary traversal algorithm when a received symbol is a "NULL" symbol.